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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/700,633      | 11/05/2003  | Seo-Young Choi       | 6161.0110.US        | 5366             |

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EXAMINER

HINES, ANNE M

ART UNIT PAPER NUMBER

2879

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                        |  |
|------------------------------|--------------------------------------|----------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/700,633 | <b>Applicant(s)</b><br>CHOI, SEO-YOUNG |  |
|                              | <b>Examiner</b><br>Anne M. Hines     | <b>Art Unit</b><br>2879                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                                |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                           | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/1/2004</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 12 is objected to because of the following informalities: the words phosphor pattern do not have a space between them and appear as "phosphorpattern". Appropriate correction is required.

### ***Double Patenting***

Applicant is advised that should claim 15 be found allowable, claim 18 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 3, 4, 5, 6, 11, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Juestel et al. (US 2002/0113552).

Regarding claim 1, Juestel discloses a fluorescent layer (Fig. 1,9) that includes a red phosphor pattern (Page 1, Paragraph [0003]), a green phosphor pattern (Page 1, Paragraph [0003]), and a blue phosphor pattern (Page 1, Paragraph [0003]), the red phosphor pattern containing  $\text{Y(V,P)O}_4\text{:Eu}$  and  $(\text{Y,Gd})\text{BO}_3\text{:Eu}$  (Page 2, Paragraphs [0023]-[0024]).

Regarding claim 2, Juestel further discloses wherein the amount of  $\text{Y(V,P)O}_4\text{:Eu}$  is in the range of 20-80% by weight based on the total weight of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $(\text{Y,Gd})\text{BO}_3\text{:Eu}$  (Page 3, Paragraph [0041]).

Regarding claim 3, Juestel further discloses wherein the amount of  $\text{Y(V,P)O}_4\text{:Eu}$  is in the range of 50-80% by weight based on the total weight of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $(\text{Y,Gd})\text{BO}_3\text{:Eu}$  (Page 3, Paragraph [0041]).

Regarding claim 4, Juestel discloses a fluorescent layer that includes a red phosphor pattern (Page 1, Paragraph [0003]), a green phosphor pattern (Page 1, Paragraph [0003]), and a blue phosphor pattern (Page 1, Paragraph [0003]), wherein the plasma display panel is without a color-compensating filter (Juestel does not disclose a color-compensating filter), and the red phosphor pattern contains  $\text{Y(V,P)O}_4\text{:Eu}$  and  $(\text{Y,Gd})\text{BO}_3\text{:Eu}$  (Page 2, Paragraphs [0023]-[0024]).

Regarding claim 5, Juestel further discloses wherein the amount of  $\text{Y(V,P)O}_4\text{:Eu}$  is in the range of 20-80% by weight based on the total weight of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $(\text{Y,Gd})\text{BO}_3\text{:Eu}$  (Page 3, Paragraph [0041]).

Regarding claim 6, Juestel further discloses wherein the amount of  $Y(V,P)O_4:Eu$  is in the range of 50-80% by weight based on the total weight of  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  (Page 3, Paragraph [0041]).

Regarding claim 11, Juestel discloses a fluorescent layer that includes a red phosphor pattern (Page 1, Paragraph [0003]), a green phosphor pattern (Page 1, Paragraph [0003]), and a blue phosphor pattern (Page 1, Paragraph [0003]), wherein the plasma display panel is not provided with a color-compensating filter (Juestel does not disclose a color-compensating filter) and has a red-color purity ranging from 0.657 to 0.670 for a chromaticity coordinate value x and from 0.322 to 0.332 for a chromaticity coordinate value y (Page 3, Paragraph [0041]; Table 3).

Regarding claim 16, Juestel discloses a fluorescent later that includes a red phosphor pattern (Page 1, Paragraph [0003]), a green phosphor pattern (Page 1, Paragraph [0003]), and a blue phosphor pattern (Page 1, Paragraph [0003]) wherein the plasma display panel is without a color-compensating filter (Juestel does not disclose a color-compensating filter) and has a red-color purity ranging from 0.660 to 0.670 for a chromaticity coordinate value x and from 0.322 to 0.330 for a chromaticity coordinate value y (Page 3, Paragraph [0041]; Table 3).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 8, 9, 10, 12, 13, 14, 15, 17, 18, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juestel et al. (US 2002/0113552).

Regarding claims 7 and 9, Juestel teaches wherein the red phosphor pattern contains  $Y(V,P)O_4:Eu$  and  $(Y,Gd)BO_3:Eu$  of “up to 100% of  $Y(V,P)O_4:Eu$ ” or “up to 100% of  $(Y,Gd)BO_3:Eu$ ” (Page 3, Paragraph [0041]). Juestel also teaches “the use of two phosphors which emit the same color in one and the same phosphor layer makes it possible to reduce or mutually compensate the undesirable properties of the phosphors” (Page 1, Paragraph [0010]). Juestel fails to teach wherein the red color purity ranges from 0.657 to 0.670 for an x chromaticity coordinate value and from 0.322 to 0.332 for a y chromaticity coordinate value, as in claim 7. Juestel also fails to teach wherein the red color purity ranges from 0.660 to 0.670 for an x chromaticity coordinate value and from 0.322 to 0.330 for a y chromaticity coordinate value, as in claim 9. However, the chromaticity values for  $Y(V,P)O_4:Eu$  are:  $x=0.662$ ,  $y=0.328$ ; this is shown in Table 3. The chromaticity values for  $(Y,Gd)BO_3:Eu$  are:  $x=0.641$ ,  $y=0.356$ ; this property is disclosed by the Kasei-Optonix website (see address below). Since the properties of the red phosphor pattern depend on the quantity of each phosphor in the layer (Fig. 3, Table 5) it would be obvious to one of ordinary skill in the art to modify the percentages

Art Unit: 2879

of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $\text{(Y,Gd)BO}_3\text{:Eu}$  in the phosphor layer of Juestel to get the chromaticity coordinates specified in claims 7 and 9.

Kasei-Optonix website: <http://www.kasei-optonix.co.jp/english/products/phosphor/plasma.html>

Regarding claims 8 and 10, Juestel teaches wherein the red phosphor pattern contains  $\text{Y(V,P)O}_4\text{:Eu}$  and  $\text{(Y,Gd)BO}_3\text{:Eu}$  of “up to 100% of  $\text{Y(V,P)O}_4\text{:Eu}$ ” or “up to 100% of  $\text{(Y,Gd)BO}_3\text{:Eu}$ ” (Page 3, Paragraph [0041]). Juestel also teaches “the use of two phosphors which emit the same color in one and the same phosphor layer makes it possible to reduce or mutually compensate the undesirable properties of the phosphors” (Page 1, Paragraph [0010]). Juestel fails to teach wherein the red light afterglow decay time is 4.0-8.8 ms, as in claim 8. Juestel also fails to teach wherein the red light afterglow decay time is 4.0-8.0 ms, as in claim 10. However, the afterglow decay value for  $\text{Y(V,P)O}_4\text{:Eu}$  is 3.5 ms; this is shown in Table 3. The afterglow decay value for  $\text{(Y,Gd)BO}_3\text{:Eu}$  is 11 ms; this property is disclosed by the Kasei-Optonix website (see address above). Since the properties of the red phosphor pattern depend on the quantity of each phosphor in the layer it would be obvious to one of ordinary skill in the art to modify the percentages of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $\text{(Y,Gd)BO}_3\text{:Eu}$  in the phosphor layer of Juestel to get the afterglow decay values specified in claims 7 and 9.

Regarding claims 12 and 17, Juestel teaches a fluorescent layer that includes a red phosphor pattern, a green phosphor pattern, and a blue phosphor pattern, wherein

Art Unit: 2879

the plasma is without a color-compensating filter (see claim 4 rejection). Juestel fails to teach wherein the afterglow decay time is 4.0-8.8 ms for red light, as in claim 12.

Juestel also fails to teach wherein the afterglow decay time is 4.0-8.0 ms for red light, as in claim 17. However, it would have been obvious to one of ordinary skill in the art to modify the red phosphor of Juestel to have the afterglow decay values specified in claims 12 and 17. See claims 8 and 10 rejection for motivation.

Regarding claims 13 and 19, Juestel teaches the invention of claims 11 and 16, and also teaches wherein the red phosphor pattern has  $\text{Y(V,P)O}_4\text{:Eu}$  and  $(\text{Y,Gd})\text{BO}_3\text{:Eu}$ . Juestel fails to teach wherein the red phosphor layer has both phosphors and a red color purity coordinates between 0.657 and 0.670 for x, and between 0.322 and 0.332 for y, as in claim 13. Juestel fails to teach wherein the red phosphor layer has both phosphors and a red color purity coordinates between 0.660 and 0.670 for x, and between 0.322 and 0.330 for y, as in claim 19. However, Juestel teaches combinations of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $(\text{Y,Gd})\text{BO}_3\text{:Eu}$  with up to 100% of either phosphor (Page 3, Paragraph [0041]). One of ordinary skill in the art would know that phosphors with a high percentage of  $\text{Y(V,P)O}_4\text{:Eu}$  would have chromaticity coordinate values in the ranges specified in claims 13 and 19. Therefore it would have been obvious to one of ordinary skill in the art to modify the red phosphor pattern of Juestel to have the chromaticity coordinate values specified in claim 11 in addition to the phosphors of claim 13. See claims 7 and 9 rejection for motivation.

Regarding claim 14, Juestel fails to teach wherein a combination of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $(\text{Y,Gd})\text{BO}_3\text{:Eu}$  for the red phosphor pattern results in an afterglow decay time of



Art Unit: 2879

4.0-8.8 ms for red light. However, it would have been obvious to one of ordinary skill in the art to modify the red phosphor of Juestel to have the afterglow decay values specified in claim 14. See claims 8 and 10 rejection for motivation.

Regarding claims 15, 18, and 20, Juestel fails to teach wherein a combination of  $\text{Y(V,P)O}_4\text{:Eu}$  and  $\text{(Y,Gd)BO}_3\text{:Eu}$ , with the amount of  $\text{Y(V,P)O}_4\text{:Eu}$  in the range of 20-80% by weight (for claims 15 and 18) or in the range of 50-80% (for claim 20), for the red phosphor pattern results in a red-color purity ranging from 0.657 to 0.670 for a chromaticity coordinate value x and from 0.322 to 0.332 for a chromaticity coordinate value y. However, it would have been obvious to one of ordinary skill in the art to modify the red phosphor pattern of Juestel to have the chromaticity coordinate values specified in claim 11 in addition to the ranges of  $\text{Y(V,P)O}_4\text{:Eu}$  specified in claims 15 and 20. See claims 7 and 9 rejection for motivation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2879

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anne M Hines  
Patent Examiner  
Art Unit 2879

*AMH*  
*8/11/05*

*Marzo 8/20/05*  
**MARICELI SANTIAGO**  
**PRIMARY EXAMINER**